

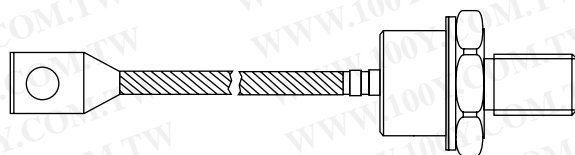


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[Http://www.100y.com.tw](http://www.100y.com.tw)

## 300U(R) Series

Vishay High Power Products

### Standard Recovery Diodes (Stud Version), 300 A



DO-205AB (DO-9)

#### FEATURES

- Alloy diode
- Popular series for rough service
- Stud cathode and stud anode version
- RoHS compliant
- Designed and qualified for industrial level



RoHS  
COMPLIANT

#### TYPICAL APPLICATIONS

- Welders
- Power supplies
- Motor controls
- Battery chargers
- General industrial current rectification

#### PRODUCT SUMMARY

$I_{F(AV)}$

300 A

#### MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		300	A
	$T_C$	150	°C
$I_{FSM}$	50 Hz	6550	A
	60 Hz	6850	
$I^2_t$	50 Hz	214	kA <sup>2</sup> s
	60 Hz	195	
$V_{RRM}$	Range	100 to 600	V
$T_J$		- 65 to 200	°C

#### ELECTRICAL SPECIFICATIONS

##### VOLTAGE RATINGS

TYPE NUMBER	VOLTAGE CODE	$V_{RRM}$ , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	$I_{RRM}$ MAXIMUM AT $T_J = 175^\circ\text{C}$ mA
300U(R)	10	100	200	40
	20	200	300	
	30	300	400	
	40	400	500	
	60	600	700	

# 300U(R) Series



Vishay High Power Products Standard Recovery Diodes  
(Stud Version), 300 A

FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS			VALUES	UNITS
Maximum average forward current at case temperature	I <sub>F(AV)</sub>	180° conduction, half sine wave			300	A
					130	°C
Maximum peak, one cycle forward, non-repetitive surge current	I <sub>FSM</sub>	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial T <sub>J</sub> = T <sub>J</sub> maximum	6550	A
		t = 8.3 ms				
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		5500	
		t = 8.3 ms			5750	
Maximum I <sup>2</sup> t for fusing	I <sup>2</sup> t	t = 10 ms	No voltage reapplied		214	kA <sup>2</sup> s
		t = 8.3 ms				
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		151	
		t = 8.3 ms			138	
Maximum I <sup>2</sup> √t for fusing	I <sup>2</sup> √t	t = 0.1 to 10 ms, no voltage reapplied			2140	kA <sup>2</sup> √s
Maximum value of threshold voltage	V <sub>F(TO)</sub>	T <sub>J</sub> = 200 °C			0.610	V
Maximum value of forward slope resistance	r <sub>f</sub>				0.751	mΩ
Maximum forward voltage drop	V <sub>FM</sub>	I <sub>pk</sub> = 942 A, T <sub>J</sub> = 25 °C			1.40	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating and storage temperature range	$T_J$ , $T_{Stg}$		- 65 to 200	°C
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation	0.18	K/W
Maximum thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, smooth, flat and greased	0.08	
Maximum allowed mounting torque + 0 - 20 %		Not lubricated threads	37	Nm
		Lubricated threads	28	
Approximate weight			250	g
Case style		(JEDEC) see dimensions - link at the end of datasheet	DO-205AB (DO-9) <sup>(1)</sup>	

## Note

<sup>(1)</sup> 302U-A uses case style B-26

$\Delta R_{thJC}$ CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.020	0.015	$T_J = T_J \text{ maximum}$	K/W
120°	0.024	0.025		
90°	0.031	0.034		
60°	0.045	0.047		
30°	0.077	0.077		

## Note

- The table above shows the increment of thermal resistance  $R_{thJC}$  when devices operate at different conduction angles than DC

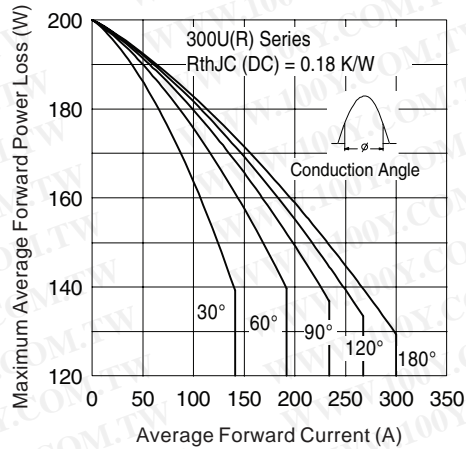


Fig. 1 - Current Ratings Characteristics

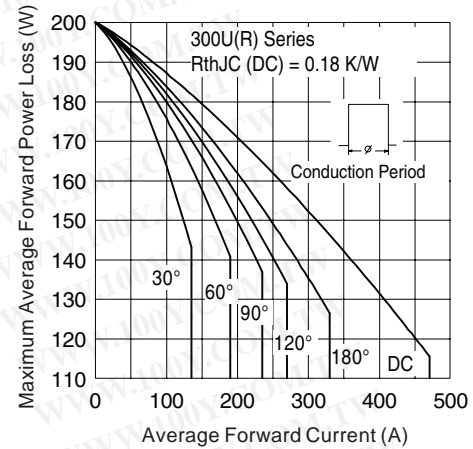


Fig. 2 - Current Ratings Characteristics

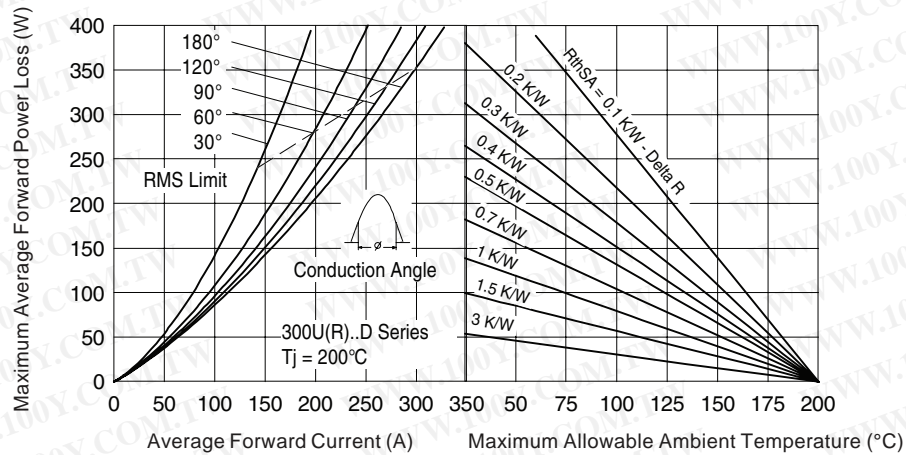


Fig. 3 - Forward Power Loss Characteristics

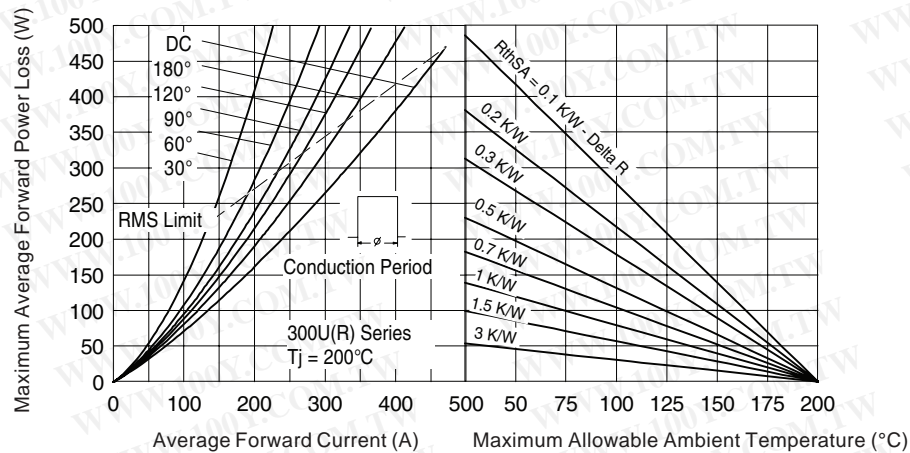


Fig. 4 - Forward Power Loss Characteristics

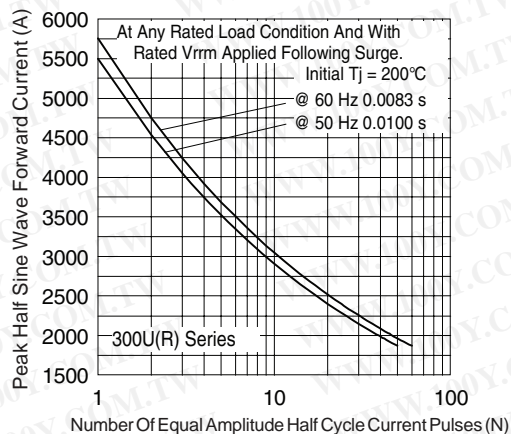


Fig. 5 - Maximum Non-Repetitive Surge Current

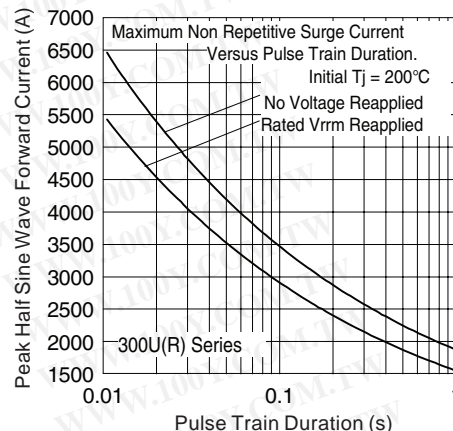


Fig. 6 - Maximum Non-Repetitive Surge Current

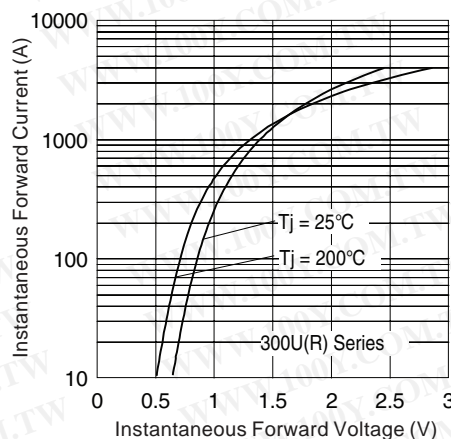


Fig. 7 - Forward Voltage Drop Characteristics

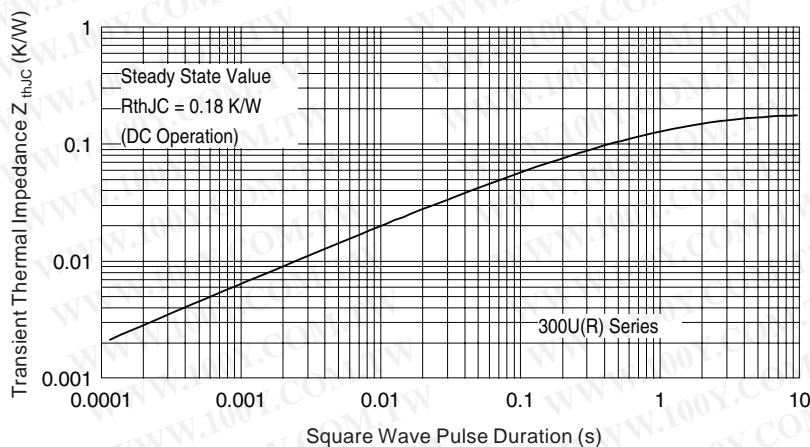
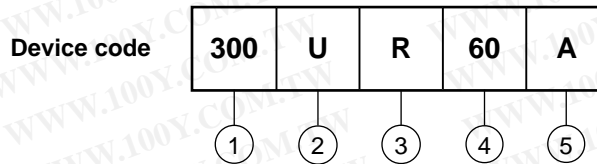


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic



### ORDERING INFORMATION TABLE



- 1** -
  - 300 = Standard 300U device
  - 302 = 300U top threaded version
- 2** - U = Essential part number
- 3** -
  - R = Stud reverse polarity (anode to stud)
  - None = Stud normal polarity (cathode to stud)
- 4** - Voltage code x 10 =  $V_{RRM}$  (see Voltage Ratings table)
- 5** - A = Essential part number

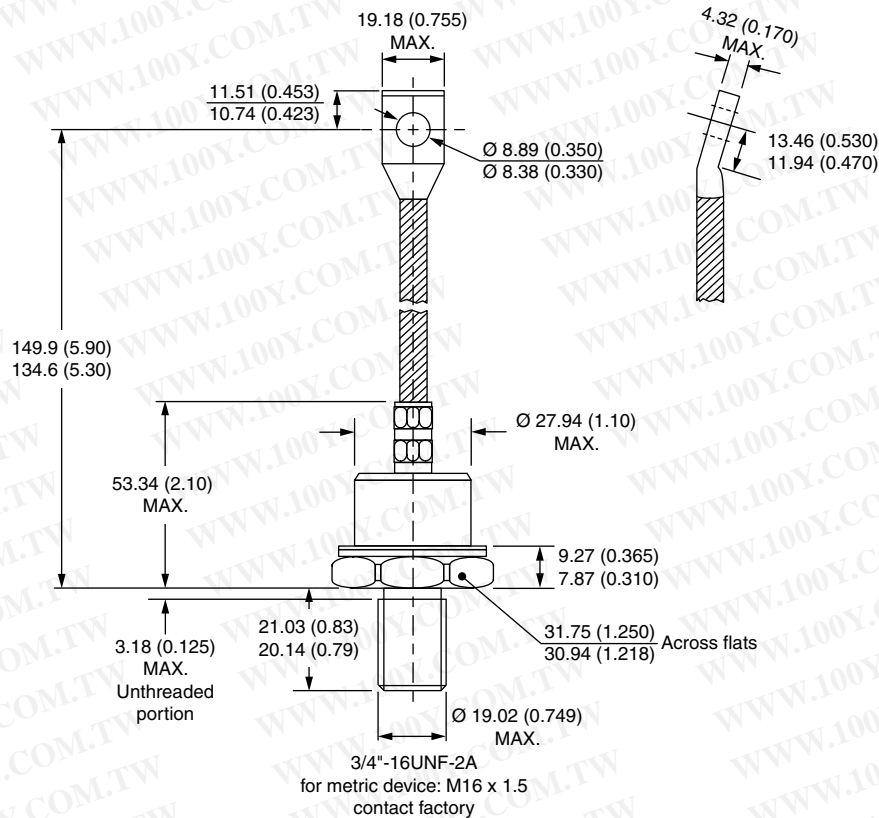
Note: For metric device M16 x 1.5 contact factory

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95340">http://www.vishay.com/doc?95340</a>

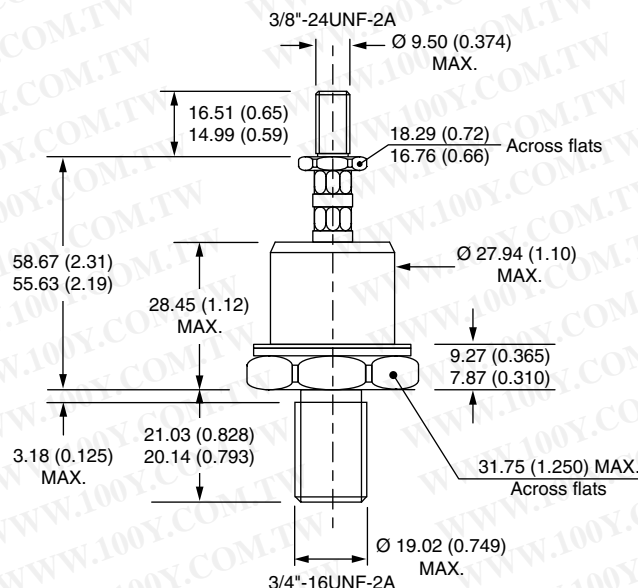


## DO-205AB (DO-9) and B-26 for 300U(R) Series

### DIMENSIONS FOR 300U(R)-A SERIES - DO-205AB (DO-9) in millimeters (inches)



### DIMENSIONS FOR 302U(R)-A SERIES - B-26 in millimeters (inches)





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